

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 June 2004 (03.06.2004)

PCT

(10) International Publication Number
WO 2004/045578 A3

- (51) International Patent Classification⁷: **C07D 267/22**, A61M 31/00
- (74) Agent: **GRUBB, Philip**; Novartis AG, Corporate Intellectual Property, CH-4002 Basel (CH).
- (21) International Application Number:
PCT/EP2003/012737
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LT, LU, LV, MA, MD, MK, MN, MX, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SE, SG, SK, SY, TJ, TM, TN, TR, TT, UA, US, UZ, VC, VN, YU, ZA, ZW.
- (22) International Filing Date:
14 November 2003 (14.11.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (84) Designated States (*regional*): Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).
- (30) Priority Data:
60/426,809 15 November 2002 (15.11.2002) US
- Published:**
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (71) Applicant (*for all designated States except AT, US*): **NOVARTIS AG** [CH/CH]; Lichtstrasse 35, CH-4056 Basel (CH).
- (71) Applicant (*for AT only*): **NOVARTIS PHARMA GMBH** [AT/AT]; Brunner Strasse 59, A-1230 Vienna (AT).
- (88) Date of publication of the international search report:
8 July 2004
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): **PRESCOTT, Margaret, Forney** [US/US]; 2 Fairview Road, Millburn, NJ 07041 (US).
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: DRUG DELIVERY SYSTEM

(57) Abstract: A drug delivery device or system comprising: a) a medical device, e.g. a coated stent or stent-graft, adapted for local application or administration in hollow tubes; and, in conjunction therewith, b) a therapeutic dosage of an anti-inflammatory ascomycin derivative, such as pimicrolimus, e.g. affixed to the medical device, and use thereof in the preparation of a medicament for the prevention and treatment of inflammatory complications following vascular injury, and method of treatment therewith.

WO 2004/045578 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/12737

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07D267/22 A61M31/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61M C07D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 925 649 A (NAEF RETO ET AL) 20 July 1999 (1999-07-20) column 1, line 5-9 column 5, line 41-52 column 7, line 28-66	1-4
Y	column 8, line 47-60 column 9, line 18-23 column 10, line 34-45 column 11, line 1-33 column 12, line 1-6	1-9
Y	US 6 239 102 B1 (TIEMESSEN HARRY) 29 May 2001 (2001-05-29) column 2, line 55-67 column 3, line 1-13 column 9, line 6-14	1-9

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

10 May 2004

Date of mailing of the international search report

18/05/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Uhl, M

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/12737

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 786 216 A (FLANAGAN THOMAS R ET AL) 28 July 1998 (1998-07-28) column 1, line 21-26 column 7, line 36-49	1-9
Y	US 5 512 055 A (DOMB ABRAHAM J ET AL) 30 April 1996 (1996-04-30) column 1, line 12-49 column 4, line 8-39 column 6, line 8-18	1-9

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/12737

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5925649	A	20-07-1999	AU 703523 B2 25-03-1999
			AU 5645396 A 23-10-1996
			BR 9604808 A 09-06-1998
			EP 0819130 A1 21-01-1998
			FI 973529 A 25-11-1997
			JP 2000505044 T 25-04-2000
			NO 974536 A 01-10-1997
			NZ 307170 A 29-03-1999
			PL 322553 A1 02-02-1998
			SK 133997 A3 06-05-1998
			CA 2216562 A1 10-10-1996
			CN 1180359 A ,B 29-04-1998
			CZ 9703123 A3 14-01-1998
			WO 9631514 A1 10-10-1996
			HU 9801993 A2 28-12-1998
			IL 117815 A 16-07-2000
			TR 9700999 T1 21-01-1998
			ZA 9602751 A 06-10-1997
US 6239102	B1	29-05-2001	AT 239449 T 15-05-2003
			AU 1543497 A 11-08-1997
			DE 69721729 D1 12-06-2003
			DE 69721729 T2 11-12-2003
			DK 874621 T3 01-09-2003
			EP 0874621 A1 04-11-1998
			JP 2000503655 T 28-03-2000
			CA 2240339 A1 24-07-1997
			WO 9725977 A1 24-07-1997
			EP 1273288 A1 08-01-2003
			EP 1273289 A1 08-01-2003
			ES 2199338 T3 16-02-2004
			PT 874621 T 30-09-2003
US 5786216	A	28-07-1998	US 5418154 A 23-05-1995
			US 5283187 A 01-02-1994
			US 5158881 A 27-10-1992
			US 4892538 A 09-01-1990
			US 5773286 A 30-06-1998
			US 5643773 A 01-07-1997
			AT 161707 T 15-01-1998
			AU 661021 B2 13-07-1995
			AU 2302892 A 25-01-1993
			CA 2090118 A1 29-12-1992
			DE 69223932 D1 12-02-1998
			DE 69223932 T2 28-05-1998
			DK 546158 T3 07-09-1998
			EP 0546158 A1 16-06-1993
			ES 2111072 T3 01-03-1998
			FI 930884 A 21-04-1993
			GR 3026555 T3 31-07-1998
			JP 6502120 T 10-03-1994
			NO 930714 A 19-04-1993
			SG 48815 A1 18-05-1998
			WO 9300063 A1 07-01-1993
			AT 131728 T 15-01-1996
			CA 2049056 A1 09-07-1991
			DE 69115571 D1 01-02-1996
			DE 69115571 T2 09-05-1996

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/12737

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5786216	A	DK 462269 T3	22-01-1996
		EP 0462269 A1	27-12-1991
		ES 2080939 T3	16-02-1996
		FI 104699 B1	31-03-2000
		GR 3018582 T3	31-03-1996
		HK 58896 A	12-04-1996
		JP 3007144 B2	07-02-2000
		JP 4507423 T	24-12-1992
		KR 162498 B1	16-11-1998
		NO 913516 A	31-10-1991
		WO 9110425 A1	25-07-1991
		US 5389535 A	14-02-1995
		US 5284761 A	08-02-1994
		AT 86103 T	15-03-1993
		AU 2718488 A	14-06-1989
		AU 621326 B2	12-03-1992
		CA 1335715 C	30-05-1995
		DE 3878918 D1	08-04-1993
		DE 3878918 T2	17-06-1993
		DK 121690 A	13-07-1990
		EP 0388428 A1	26-09-1990
		FI 95284 B	29-09-1995
		HK 1002406 A1	21-08-1998
		JP 2780796 B2	30-07-1998
		JP 3502534 T	13-06-1991
US 5512055	A	30-04-1996	
		US 5762638 A	09-06-1998
		US 5695458 A	09-12-1997
		US 5437656 A	01-08-1995
		US 5344411 A	06-09-1994
		AU 1579092 A	06-10-1992
WO 9215286 A1	17-09-1992		